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Indian Standard

METHOD FOR DETERMINATION OF COLOUR FASTNESS OF TEXTILE MATERIALS TO DRY-HEAT TREATMENTS (EXCLUDING PRESSING)

(First Revision)

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Indian Standard

METHOD FOR DETERMINATION OF COLOUR FASTNESS OF TEXTILE MATERIALS TO DRY-HEAT TREATMENTS (EXCLUDING PRESSING)

(First Revision)

0. FOREWORD

0.1 This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards on 20 May 1988, after the draft finalized by the Chemical Methods of Test Sectional Committee had been approved by the Textile Division Council.

0.2 This standard was first published in 1968 and has been revised to align it with ISO 105/P-1978 'Textiles — Tests for colour fastness PO1 Colour fastness to dry heat (excluding pressing)'; issued by the International Organization for Standardization (ISO) and also to incorporate changes in line with other standards on colour fastness tests.

0.3 Colour fastness of textile materials is likely to be affected by the action of dry-heat treatments as employed in processes of pleating, setting, etc, and check for colour fastness is, therefore, of considerable importance.

1. SCOPE

1.1 This standard prescribes a method for the determination of colour fastness of textile materials of all kinds and in all forms to the action of dry-heat as employed in processes designed to give textiles stability of dimensions or shape such as pleating and setting. It is mainly applicable to synthetic fibres or textiles containing synthetic fibres.

1.1.1 Three tests differing in temperature are provided; one or more of them shall be used depending on the requirements and the stability of the fibres.

1.2 When this method is used for assessing colour change and staining in dyeing, printing and finishing processes, it should be recognized that other chemical and physical factors may influence the results.

2. PRINCIPLE

2.1 A specimen of the textile in contact with adjacent fabrics is heated by close contact with a medium which, in turn, is heated to the required temperature. The change in colour of the specimen and the staining of the adjacent fabrics are assessed with the grey scales.

3. SAMPLING

3.1 Sample to determine conformity of a lot of coloured textile material to a specification shall be selected so as to be representative of the lot.

3.2 Sample drawn in accordance with the relevant material specification or as agreed to between the buyer and the seller to evaluate colour fastness of the material in the lot shall be representative of the lot.

4. PREPARATION OF COMPOSITE SPECIMEN

4.1 If the textile to be tested is fabric, place a test specimen of suitable size from the sample (*see* Note) adapted to that of heating device (*see* **5.1**) between the two pieces of adjacent fabrics and sew along one of the shorter sides to form a composite specimen.

NOTE — The size of the specimen should be such that the pressure on the composite specimen would amount to 4 ± 1 kPa.

4.2 If the textile to be tested is yarn, knit or weave it into a fabric and prepare the composite specimen as in **4.1** or, alternatively, form a layer of parallel lengths of yarn between the two pieces of adjacent fabrics; the amount of yarn taken being approximately half of the combined mass of the adjacent fabrics, sew along two opposite sides to hold the yarn in place and to form a composite specimen.

4.3 If the textile to be tested is loose fibre, comb and compress an amount approximately equal to half the combined mass of the adjacent fabrics into a sheet of required size (*see* Note *under* **4.1**). Place the sheet between the two pieces of adjacent fabrics and sew along all four sides to hold the fibre in place and to form a composite specimen.

5. APPARATUS

5.1 A Suitable Heating Arrangement — Providing even heat transfer at controlled temperatures by close contact with the composite specimen.

NOTE 1 — A pair of hot plates equipped with an electrical heating system which is accurately controllable is suitable. In order to obtain a pressure of 4 ± 1 kPa, the total area of the composite specimen shall bear a suitable relationship to the mass of the plate pressing down on the specimen.

NOTE 2 — A molten metal-bath, in which a holder (*see* Fig. 1) containing the composite specimen is immersed, is also suitable. The metal alloy of the following composition should be used:

Alloy	*Percent*
Bismuth	50·0
Lead	26·6
Tin	13·4
Cadmium	10·0

NOTE 3 — Other devices may also be used provided that the same results are obtained as with the apparatus described in **5.1**.

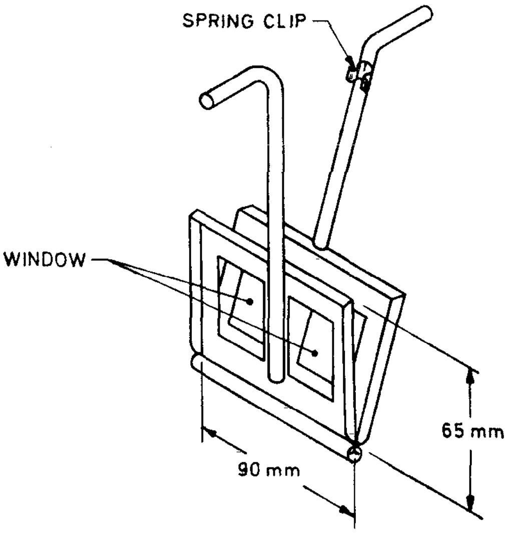

FIG. 1 HOLDER

5.2 Aluminium Foil — of thickness 0·001 to 0·002 cm.

5.3 Two Adjacent Fabrics — each of size adapted to that of heating device, one piece made of the same fibre as that in the sample to be tested or that predominating in case of blends, the second piece made of polyester fibre, unless otherwise specified.

6. PROCEDURE

6.1 Place the composite specimen in the heating device with a pressure of 4 ± 1 kPa on it, or alternatively cover both sides of the composite specimen with aluminium foil and mount in the holder (*see* Fig. 1 and 2). Leave it there for 30 seconds at one or more of the following temperatures:

Test	*Temperature*
Mild	150 ± 2°C
Intermediate	180 ± 2°C
Severe	210 ± 2°C

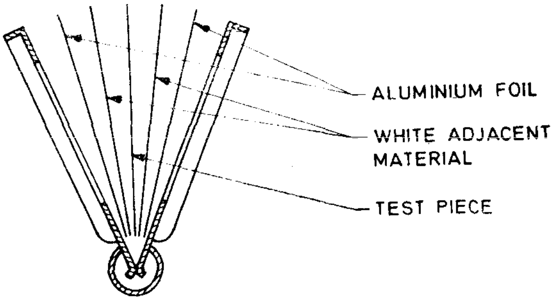

FIG. 2 LOADING ARRANGEMENT

NOTE 1 — The composite specimen should be placed after the required temperature is attained.

NOTE 2 — When desired, other temperatures and/or times may be used, provided that they are specially noted in the test report.

6.2 Remove the composite specimen and leave it in air at 27 ± 2°C and 65 ± 2 percent relative humidity for 4 hours.

6.3 Evaluate the change in colour of the test specimen by the method prescribed in IS : 768-1982* and the staining of the two pieces of adjacent fabrics by the method prescribed in IS : 769-1982†.

NOTE 1 — Treated test specimens and the piece of adjacent fabrics should have cooled after drying and should have regained their normal moisture content before evaluation.

NOTE 2 — In cases of doubt in the colour fastness rating as assessed by an observer, the assessment should be done by at least three observers and the overall average rating should be reported.

7. REPORT

7.1 Report individually the numerical ratings for the change in colour of the specimen and for staining of each kind of adjacent fabric used in the preparation of composite specimen.

7.2 Report also the test used, that is, mild, intermediate or severe.

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*Method for evaluating change in colour (*first revision*).
†Method for evaluating staining (*first revision*).

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